Endocrine Management of Adult Gender-Dysphoric/ Gender-Incongruent Persons: A Clinical Practice Guideline from Endocrine Society of India

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Introduction

Individuals with gender incongruence (GI) or transgenders (TG) have incongruence between experienced/expressed gender and the gender designated at birth. Transgender women (TGW) are individuals who were designated as male at birth but identify themselves as women. On the other hand, transgender men (TGM) are individuals who were designated as female at birth but identify themselves as men [Table 1]. The International Classification of Diseases, 11th Revision (ICD-11) classifies GI as a disorder of sexual health, not as a mental disease.[1] A recent study found 0.7%–1.1% GI population in Europe, but in India, there are only five lakhs TG individuals, likely a gross underestimation, due to social stigma and limited public awareness.[2]

In India, most TG individuals present late with minimal family support, even with unplanned castration by unqualified persons, due to a lack of awareness about the availability of modern endocrine treatment.[3,4] The lack of country-specific guidelines, socio-cultural taboos, deficiency of training and transphobia within medical professionals in India are the major hurdles for TG management. There are several international guidelines on the management of GI with gender-affirming hormonal treatment (GAHT), including feminizing hormone therapy (FHT) for feminizing transition and masculinizing hormone therapy (MHT) for masculinizing transition published by several professional bodies like the World Professional Association for Transgender Health (WPATH), The Endocrine Society as well as Indian bodies like Sappho Good Practice Guide and Integrated Diabetes and Endocrine Academy (IDEA).[5-9] The current document is meant for adults with GI. The management of children and adolescents is beyond the scope of this document. The clinical practice guideline from The Endocrine Society of India (ESI) acknowledges and affirms diverse gender expressions that may not require psychological, hormonal or surgical interventions. Healthcare providers can use the clinical practice guideline as a framework to help patients explore a comprehensive range of GAHT aligned with their clinical needs and gender expression.

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Recommendation 1: Diagnosis

The Diagnostic and Statistical Manual of Mental Disorders (DSM-5 302.85 (F64.9)) diagnostic criteria have been endorsed by The Endocrine Society[6] and WPATH for diagnosis of GI/dysphoria.[6]

Evaluation for a person with GI is a multi-disciplinary effort, and the diagnosis is usually best made by a mental health professional (MHP). This is in keeping with the WPATH and The Endocrine Society. Moreover, GI may be accompanied by psychological or psychiatric problems, particularly self-harm and suicidality.[10] It is necessary to make a distinction between GI and conditions that have similar presentations, e.g., body dysmorphic disorder, to evaluate for the presence of dysphoria or suicidality and also to exclude other underlying psychiatric comorbidities.

Recommendations:

1. Diagnostic criteria laid down in DSM-5 are to be used for the diagnosis of GI [Annexure 1].
2. Diagnosis of GI is to be done with the involvement of at least one psychiatrist or registered clinical psychologist.

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Table 1: Definitions of terminology

- Biological Sex (Male or Female): Refers to the physical attributes related to being male or female and mostly assigned at birth. These characteristics might not always align (e.g. an individual with XY chromosomes may have female-appearing genitalia).
- Cisgender: Refers to individuals whose gender identity aligns with their sex assigned at birth.
- Gender Role: Relates to societal expectations, attitudes, and behaviours historically considered typical or appropriate for men or women within a specific culture or time period.
- Gender Identity/Experienced Gender: Refers to an individual's deep, internal understanding of their gender. For transgender individuals, this does not match their sex assigned at birth.
- Gender Expression: Represents how individuals externally express their gender through choices such as names, pronouns, clothing, hairstyles, behaviour, voice, or physical characteristics. Many transgender individuals aim to align their gender expression with their internal gender identity rather than their assigned sex at birth (biological sex).
- Gender Dysphoria: Describes the emotional distress or discomfort arising when there is a mismatch between an individual's gender identity and the sex assigned at birth.
- Gender Incongruence: A broad term describing situations where gender identity or expression differs from societal expectations based on assigned sex at birth. Not all individuals experiencing gender incongruence have gender dysphoria or seek medical interventions.
- Gender-Affirming Therapy (Gender-Confirming Therapy): Refers to the procedures that help individuals align their physical characteristics with their gender identity, such as hormone therapy or surgery.
- Gender-Affirming Hormonal Therapy: Refers to the hormone therapy that helps individuals align their physical characteristics with their gender identity.
- Gender-Affirming Surgery: Refers specifically to the surgical aspect of gender-affirming treatment.
- Sex Assigned at Birth: The sex identified at birth, often based on external genitalia.
- Sexual Orientation: Refers to a person's lasting physical or emotional attraction to others. Individuals (including gender incongruent people) may identify as heterosexual, homosexual, bisexual, asexual or queer.
- Transgender: An umbrella term for individuals whose gender identity or expression differs from societal expectations of their sex assigned at birth. Not all transgender individuals pursue medical or social interventions.
- Transgender Male (Trans Man): Refers to individuals assigned female at birth who identify and live as men.
- Transgender Woman (Trans Woman): Refers to individuals assigned male at birth who identify and live as women.
- Transition: The process by which transgender individuals adapt their physical, social or legal characteristics to align with their gender identity.

Recommendation 2: Initial counselling

Initial counselling for GAHT is a critical step in supporting individuals seeking gender transition. It typically includes a comprehensive discussion of several key points, ensuring the individual has adequate information, support and understanding before proceeding with treatment.

1. **Goals of GAHT:** It is also important to discuss what the individual expected to achieve through therapy (e.g. reducing dysphoria, aligning physical appearance with gender identity).
2. **Medical Interventions:** Overview of GAHT, the expected physical changes and the timeline need to be discussed. Discussion of surgical options (top surgery, bottom surgery or other procedures) and emphasis on the reversible and irreversible effects of different interventions.
3. **Risks and Benefits:** An explanation of the potential risks associated with GAHT (e.g. thromboembolism, cardiovascular risks, infertility) and potential benefits (improved mental health, reduced dysphoria, enhanced quality of life) is essential.
4. **Counselling Against Substance Abuse and Self-Medication:** Substance abuse among TG individuals is often linked to stress, discrimination or unmet mental health needs. Healthcare professionals should highlight the dangers of self-medicating with hormones and refer to mental health support to address co-occurring conditions like anxiety, depression or post-traumatic stress disorder.
5. **Counselling for a Healthy Lifestyle:** It is essential to adopt a healthy lifestyle, focusing on maintaining a healthy body weight and avoiding smoking and alcohol.
6. **Fertility Preservation Options:** It is also important to inform TG individuals that hormone therapy can significantly impact fertility, emphasizing the irreversible effects of gonadectomy and discussing options for gamete preservation.[11] The potential cost implications and resource constraints of gamete preservation in India are to be discussed before starting GAHT.
7. **Informed Consent:** The Indian legal system recognizes the age of consent as 18 years. The Sappho Good Practice Guide adopted the age of 18 for gender transition.[9] Obtaining informed consent for GAHT to ensure that patients understand the psychological and physical implications (benefits and risks) of hormone therapy. MHP must be able to assess the capacity of the individual to consent for treatment and should issue a certificate to start GAHT[5] [Annexure 2 and 3].
8. **Continuity of Care:** The importance of regular medical follow-ups and blood work during and after starting GAHT and after gender affirming surgery (GAS) is to be discussed.
9. **Legal and Administrative Issues:** The right to gender-affirming therapy, including hormone therapy or surgery, is recognized as part of an individual's autonomy under Article 21 of the Constitution of India (Right to Life and Personal Liberty). The Government of India has established the National Online Portal for Transgender Persons (https://transgender.dosje.gov.in) to streamline the process of obtaining a TG certificate and identity card. All TG individuals should register to obtain the necessary legal recognition and access to welfare measures. They should also make an affidavit affirming the name and preferred gender in the prescribed format [Annexure 4]. The affidavit needs to be notarized by a Notary Public, and a copy should be submitted in the Government Gazette for official name and gender change.

Recommendation 3: Baseline evaluation

A baseline medical evaluation provides a foundation for safe and effective gender-affirming care.[7,8] Preventive healthcare needs of TG persons are identical to the rest of the population, but special consideration must be given to the impact of GAHT and GAS on preventive screenings.

Comprehensive medical history

A. Gender history: the individual's gender identity, expression and goals for gender-affirming care.
B. History of past or current health conditions that may affect GAHT: cardiovascular disease (CVD), diabetes mellitus, psychiatric illness, liver disease, renal disease, Human Immunodeficiency Virus (HIV), venous thromboembolism and hormonally mediated cancers.
C. Family history: CVD, metabolic diseases, venous thromboembolism, cancer, specifically reproductive cancer risk (e.g. breast and endometrial cancers).
D. Psychosocial history (mental health, social support systems, substance use), safe sex practices and sexually transmitted infection (STI), including HIV.
E. Medication regimen: Review previous hormonal regimens, including self-administered treatments, dosage, delivery methods and needle sharing (injectable drug abuse or testosterone injection in TGM).
F. Assess the efficacy of the current GAHT regimen.
G. Surgical history (previous or current GAS): TGW: Breast augmentation, vaginoplasty, orchiectomy, labiaplasty, cosmetic procedures like electrolysis or injectable silicone. TGM: hysterectomy, oophorectomy, mastectomy, vaginectomy and genital reconstruction.
H. Complications, if receiving GAHT or during previous surgery.

Physical examination

A. Height, weight and blood pressure are to be recorded.
B. Targeted examination: A gender-sensitive physical examination should be conducted with respect to the patient's anatomy and comfort, focusing only on medically necessary areas, such as the breasts, genitalia and digital rectal examination (DRE) for prostate assessment in TGW. Regardless of gender presentation, the examination should be guided by the patient's anatomical features, based on a thorough and sensitive history of existing organs and any modifications. Anticipatory communication is essential – before requesting the patient to undress, the necessity of examining sensitive areas should be clearly explained, using language that aligns with the patient's preferences. A chaperone must be present during sensitive examinations, and patients should be asked whether they prefer a female or male chaperone to be present.

A specialized physical examination requires an understanding of the spectrum of secondary sex characteristics in TG. TGW on GAHT may exhibit breast development, feminine fat distribution, reduced testicular size and softness, decreased body hair and muscle mass and softened skin. TGM on GAHT may present with clitoral enlargement, breast and vaginal atrophy, increased facial and body hair, male-pattern hair loss, acne, oily skin, increased upper body mass and voice deepening. Additionally, awareness of potential health concerns related to gender-affirming practices is crucial. Tucking of the penis and testicles in TGW can result in hernias and skin breakdown at the external inguinal ring. In TGM who have not undergone mastectomy, chest binding may lead to skin breakdown and musculoskeletal complications.

Laboratory investigation

Basic investigations must be done for all, and some additional tests may be carried out where needed [Table 2].

A. In resource-limited setting: complete blood count including hematocrit, fasting plasma glucose, lipid profile, serum creatinine, liver function test, thyroid functions (in the presence of goitre or family history), serum estradiol, total testosterone, follicle-stimulating hormone (FSH), luteinizing hormone (LH) and viral serology (hepatitis B surface antigen, anti-hepatitis C antibody and HIV).
B. Additional tests: HbA1c (if there is suspicion of dysglycemia or diabetes), lymphocyte karyotyping (if there is suspicion of disorders of sex development), Venereal Disease Research Laboratories (VDRL) test (in individuals with high-risk behaviour) and bone mineral density (BMD) with dual-energy X-ray absorptiometry (DXA) (in the presence of risk factors for osteoporosis).

Recommendation 4: Criteria for GAHT

GAHT is a key medical intervention for a person with GI. The decision to initiate hormone therapy is guided by established criteria [Table 3] to ensure safety and appropriateness while respecting the individual's autonomy and gender identity.[5,6]

Recommendation 5: GAHT for TGW

The hormonal regimen (estradiol with anti-androgens and progesterone) for TGW typically aims to feminize secondary sexual characteristics, suppress endogenous testosterone and align physical appearance with their gender identity. Close monitoring ensures safety and optimal outcomes in FHT.[7]

1. Estrogen Therapy: Estrogen is the cornerstone of FHT. It promotes the development of female secondary sexual characteristics, such as breast growth and fat redistribution. Ethinyl estradiol and conjugated estrogens are not used currently in FHT due to their higher risks of thromboembolism, cardiovascular complications and unpredictable effects.[5] The available estrogen preparations in India are depicted in Table 4.
   Estrogen therapy is contraindicated in patients with a history of venous thrombotic events, estrogen-sensitive neoplasm, and end-stage chronic liver disease (Child-Pugh 3). Continuous use of an adequate dose of transdermal 17-beta estradiol may suppress testosterone production effectively.
2. **Anti-androgens** [Table 5]: Anti-androgens suppress

testosterone levels, enhancing the feminizing effects of estrogen. Gonadotropin-releasing hormone (GnRH) agonists or spironolactone are routinely prescribed in TGW taking estrogen.[5] GnRH agonists are preferred due to their high efficacy and safety, but their use is limited due to prohibitive costs. Cyproterone acetate, another anti-androgen, is very effective in lowering testosterone levels but is associated with the development of meningioma and hyperprolactinemia.[5] Data on the use of Finasteride or dutasteride in TGW is very sparse, and the clinical benefit is also unclear when testosterone and dihydrotestosterone levels are already been lowered with estrogen and an antiandrogen. Flutamide/bicalutamide, selective androgen receptor antagonists, have not been evaluated in TGW and are not recommended because of hepatotoxicity. After gonadectomy (orchiectomy), the body no longer produces significant amounts of testosterone and anti-androgens are no longer necessary.

3. **Progesterone (Optional):** The role of progesterone in FHT is debatable. It may enhance breast development, improve mood and libido, suppress gonadal androgen production, improve sleep, vasomotor symptoms and BMD.[12] However, due to the limited and inconclusive data, there is no recommendation for routine use of progesterone in TGW.[5,6] Initiation of progesterone therapy may be considered after at least 12 months of estrogen and anti-androgen therapy, once testosterone levels are sufficiently suppressed, not as replacement but as an adjunct to anti-androgen therapy.

   Suggested progesterone regimens include micronized progesterone 100–200 mg daily at bedtime (preferred due to lower metabolic risks) and a cheaper option of medroxyprogesterone acetate 2.5–10 mg daily (higher risk of cardiovascular issues).

   There is no established duration of progesterone therapy due to limited data, and some clinicians prescribe it for 6–12 months, and then re-evaluate. Long-term use should involve regular cardiovascular and metabolic monitoring. Progesterone therapy is also associated with mood instability (depression/anxiety), weight gain, and uncertain effects on breast cancer risk.[12]

4. **Monitoring and Adjustments:** Regular monitoring, every 3–6 months in the first year or until stable adult dosing is reached, followed by once or twice a year monitoring once an adult maintenance dose is attained, and is essential to optimize the regimen and minimize the risks of FHT.
   1. Physical monitoring for breast growth and the growth of body and facial hair: The best marker for breast development in TGW is unknown, and objective measurement by breast-chest difference is not routinely performed in clinics.
   2. Estradiol and testosterone levels: (target testosterone: <55 ng/dL, estradiol: 100–200 pg/mL).
   3. Electrolytes, particularly potassium (for spironolactone users).
   4. Liver function tests, lipid profiles, and HbA1c.
   5. Adjust regimens for patients older than 45 years or those with cardiovascular risks (e.g., obesity, smoking, prior thrombotic issues): Transdermal estrogen should be preferred, as it carries a lower risk of thromboembolism compared to oral estrogen. Injectable estradiol may also be considered.
   6. Duration of FHT: Hormonal therapy to facilitate feminization of secondary sexual characteristics (e.g., breast development, body feminization, skin changes) takes 2–3 years to reach maximum effect and can progress for several more years. Hormone therapy is usually recommended for at least 12 months before any GAS. Hormonal therapy for TGW is generally lifelong unless contraindicated, as it plays a crucial role in maintaining feminizing effects and overall well-being.
   7. Contraindications: Estrogen therapy is avoided in patients with a history of thromboembolic events, estrogen-sensitive cancers or uncontrolled cardiovascular conditions unless risks are mitigated.

Table 2: Baseline investigations

Basic investigations	Additional investigations
1. Complete blood count, including hematocrit	1. HbA1c
2. Fasting plasma glucose	2. Prolactin
3. Lipid profile	3. Lymphocyte karyotyping (if there is suspicion of disorders of sex development)
4. Renal function tests (creatinine, sodium, potassium)	4. VDRL test (if there is a history of high-risk behaviour)
5. Liver function test	5. BMD with DXA (if there are risk factors for osteoporosis)
6. Thyroid function test	
7. Serum estradiol	
8. Total testosterone	
9. FSH	
10. LH	
11. Viral serology (hepatitis B surface antigen, anti-hepatitis C antibody, VDRL and HIV)	

Table 3: Criteria for initiation of GAHT

1. Age considerations	18 years and above
2. Persistent gender dysphoria	A well-documented history of persistent, marked gender incongruence or dysphoria.
3. Capacity for informed consent	The individual must have the ability to understand and consent to the medical and psychosocial aspects of hormone therapy.
4. Mental health and psychosocial readiness	The individual should have no significant untreated mental health conditions that might impair their ability to provide informed consent or manage treatment.
5. Medical readiness	Baseline medical evaluation should rule out contraindications (uncontrolled cardiovascular, liver or kidney diseases and presence of hormone-sensitive cancers).

Table 4: Available estrogen preparations in India

Estrogen preparations	Dose	Advantages	Limitations
Oral estradiol valerate	2–8 mg per day	Estradiol levels can be monitored; the risk of thromboembolism is less than with ethinyl estradiol or conjugated equine estrogen.	Risk of thromboembolism.
Oral 17-beta estradiol	1–6 mg daily	Inexpensive and estradiol levels can be monitored.	High risk of thromboembolism, especially in older patients (>40 yrs).
Parenteral estradiol valerate	Lower doses of 5 mg/week up to a maximum of 10–20 mg every 1–2 weeks	Estradiol levels can be monitored; the risk of thromboembolism is slightly less than with ethinyl estradiol or conjugated equine estrogen.	Injectable preparation
Transdermal estradiol hemihydrate patch (1.5 mg) releasing 50 mcg per day	50–200 mcg per day (Application in an area of clean, dry, and intact skin where little wrinkling of skin occurs during movement of the body, e.g., buttocks)	Low risk of venous thromboembolism.	May be less effective in tropical climates like India, where excessive sweating can interfere with consistent estrogen absorption. Its use should be considered by the treating physician based on climate conditions and feasibility.
Transdermal estradiol gel (0.06%) (2.5 gm contains 1.5 mg estradiol)	1.25–5 g (Application on the inside and outside of one arm as thinly as possible over the entire area from wrist to shoulder on clean, dry, unbroken skin at the same time each day and allow the gel to dry for up to 5 min before dressing)	Low risk of venous thromboembolism.	Can be transferred to others through skin-to-skin contact and is not ideal for obese due to reduced absorption rate.

Table 5: Available anti-androgen preparations in India

Medication	Action	Dose	Adverse effect	Limitation
GnRH agonists: (Leuprolide or triptorelin or goserelin)	Decrease the release of gonadotropins and thereby production of sex hormones by the gonads.	Triptorelin depot 3.75 mg monthly or 11.25 mg three-monthly (IM or SC): Leuprolide: 3.75 mg monthly or 11.25 mg three-monthly (IM or SC). Goserelin: 3.6 mg monthly or 10.8 mg every three-monthly (SC upper abdominal wall).	Decreased libido, headache, and decreased bone mineral density.	Expensive and needs to be injected.
Spironolactone	Blocks androgen receptors at high dose and inhibits testosterone production.	100–400 mg/day	Fall in blood pressure and hyperkalemia.	Potassium monitoring
Finasteride or dutasteride	Inhibit the conversion of testosterone to more active dihydrotestosterone (5α-reductase inhibitor).	Finasteride 5 mg per day or Dutasteride 0.5 mg per day.	Erectile dysfunction (may not be an issue in TGW) and psychological problems.	Do not reduce testosterone levels.

Recommendation 6: Hormonal therapy for TGW during perioperative period

Proper management of hormone therapy during GAS (gonadectomy, breast augmentation, vaginoplasty, etc.) ensures the best possible surgical outcomes and minimizes complications.

1. Estrogen therapy should be stopped four weeks before surgery (as it is associated with an elevated risk of venous thromboembolism, which is compounded by the prothrombotic state induced by surgery and immobility).
2. Estrogen may safely be resumed four weeks postoperatively when the patient is completely ambulatory and there are no complications. If there is concern about thromboembolism, switching to transdermal estrogen or injectable forms minimizes the risk.
3. GnRH agonists may be discontinued closer to surgery to avoid risks of hormonal fluctuations.
4. Spironolactone can be discontinued for a short period before surgery (typically 1–2 weeks) to minimize the risk of postoperative complications related to electrolyte disturbances.
5. Fertility preservation: All TGW should be counselled on fertility preservation options before surgical transition, as this represents their final opportunity to preserve gametes. TGW has options ranging from sperm cryopreservation for use with assisted reproductive techniques to experimental approaches like testicular tissue cryopreservation with *in vitro* spermatogenesis.[13]

Recommendation 7: Transitioning to hormonal therapy after GAS in TGW

Even after gonadectomy, it is essential to maintain appropriate follow-up care to ensure optimal outcomes:

1. **Hormone Therapy Adjustment:** Estrogen alone is

typically sufficient for maintaining feminization and bone health. Lower doses may suffice in the absence of testosterone production.

2. **Bone Health:** Testosterone and estrogen both contribute to bone health. After gonadectomy, estrogen is the sole hormone maintaining bone density. Regular (three-yearly) bone density monitoring is recommended, particularly in older individuals or those with other risk factors for osteoporosis.
3. **Serum Estradiol Levels:** Periodic (six monthly) checks ensure estrogen levels are in the target range (100–200 pg/mL).
4. **Duration:** The duration of estrogen therapy in TGW is typically lifelong, unless contraindications arise. However, oral estrogen should be switched to transdermal estrogen at 45 years and above.[5]

Recommendation 8: GAHT for TGM

1. **Testosterone Therapy:** Testosterone is the principal hormone used to induce virilization. Testosterone therapy can be administered via intramuscular, subcutaneous or transdermal route [Table 6]. The starting dose in adults is usually half of the full replacement dose, and it is then gradually titrated to a full dose for 3–6 months. Once adequate virilization has been attained, a lower dose (50% of the full replacement dose) may be continued to maintain masculinizing characteristics.[5,8]

   Intramuscular testosterone is administered weekly or 2 weekly or 4 weeks. Some TGM individuals on testosterone may experience cyclic variation in effects (e.g. aggression mood at the beginning and fatigue at the end of each injection cycle).[5] Intramuscular testosterone undecanoate (1000 mg) maintains stable, physiologic testosterone levels over approximately 12 weeks and is to be administered every 12 weeks. Daily transdermal preparation (testosterone gel 1%) also maintains stable and physiologic testosterone levels. Transdermal and intramuscular testosterone achieve similar masculinizing results, and the goal is to use the lowest dose needed to maintain the desired clinical result.[5]

   Testosterone therapy typically results in the cessation of menstrual bleeding within 3–12 months after starting treatment. The timeline for this outcome depends on factors such as the testosterone dosage, administration method, treatment frequency, therapy duration and the presence of any structural abnormalities. Transdermal or oral testosterone undecanoate, which leads to lower testosterone levels compared to injectable forms, may not effectively halt menstrual bleeding.[5] If vaginal bleeding persists beyond 3 months after initiating testosterone therapy, it is advisable to measure serum testosterone and LH levels. Adjusting the testosterone dosage to reach the target levels may be necessary. TGMs who experience ongoing menstrual cycles despite achieving male-range testosterone levels and suppressed LH levels are diagnosed with abnormal uterine bleeding, warranting further evaluation by a gynaecologist for endometrial polyps, adenomyosis, leiomyomas, endometrial hyperplasia or malignancy, or nonstructural factors like pregnancy, coagulopathy or ovulatory dysfunction.

   Testosterone therapy is contraindicated in patients with unstable coronary artery disease, untreated polycythemia with hematocrit ≥55%, and a history of breast or other estrogen-dependent cancers (aromatization of testosterone to estrogen is a concern).
2. **GnRH Agonists:** GnRH agonists (triptorelin depot 3.75 mg monthly or 11.25 mg three-monthly) are highly effective in gonadal blockade. These agents can be used for refractory uterine bleeding when testosterone alone (injectable) fails to stop bleeding in patients without an underlying gynaecological abnormality. These medications are expensive and are only available as injectables.
3. **Medroxyprogesterone:** In cases where no structural abnormalities are found, adding a progestational agent such as oral lynestrenol (5–10 mg daily) or medroxyprogesterone (5–10 mg daily) or depot medroxyprogesterone (150 mg three-monthly) may also help manage persistent menstrual bleeding despite achieving target testosterone levels. These agents are much cheaper alternatives to GnRH agonists and are widely used in the Indian socio-economic context. Routine use of progestogens for all TGM starting testosterone therapy is unnecessary.[5,8]
4. **Monitoring and Adjustments:** Regular monitoring every 6 months is essential to achieve therapeutic goals, minimize side effects and address any complications.[5,8]
   A. **Serum Testosterone Levels:** Total testosterone levels should be measured periodically and the levels should be maintained within the normal male range (typically 300–1000 ng/dL). For individuals using testosterone enanthate or cypionate injections, mid-cycle testosterone levels provide a reliable

Table 6: Available testosterone preparations in India

Preparations	Dose
Testosterone	25–50 mg IM or SC every week
Combination of testosterone propionate 25 mg and testosterone enanthate 110 mg	IM or SC every week
Testosterone enanthate	250 mg IM every 2-4 weeks
Combination of testosterone propionate, testosterone phenylpropionate, and testosterone isocaproate	100 mg IM every 2 weeks
Combination of testosterone propionate, testosterone phenylpropionate, testosterone isocaproate, and testosterone decanoate	250 mg IM every 2-4 weeks
Testosterone undecanoate	1000 mg every 12 weeks
Testosterone gel (1%) (10 mg/g)	50–100 mg per day
Testosterone gel (1.62%) (20.25 mg/1.25 g)	40.5–101.25 mg per day
Oral testosterone undecanoate	160–240 mg daily in divided doses

indicator of therapeutic effectiveness, with a target range of 400–700 ng/dL. In contrast, for those on long-acting testosterone undecanoate, levels measured just before the subsequent injection offer a better assessment, with a target of over 400 ng/dL. For individuals utilizing transdermal testosterone, testing should be conducted after one week of consistent daily application, ensuring the sample is drawn at least 2 h after the most recent application.[8]

B. **Dose Optimization:** If serum testosterone levels are not within the desired range, the dosage or frequency of administration may need to be adjusted.
C. **Hematocrit:** Erythrocytosis (hematocrit >55% or haemoglobin >17.5 g/dL) is a dose-dependent effect of testosterone with the largest increase seen in the first year of use (maximum in the first 3 months), and also long-term cumulative risk. Hematocrit exceeding 0.54 L/L requires discontinuation or dose adjustment of testosterone treatment, and hematocrit level >50% is a relative contraindication to initiation of testosterone.[6] If hematocrit >50%, withhold testosterone and evaluate for other aetiologies like obesity, obstructive sleep apnea (OSA), tobacco use, chronic obstructive pulmonary disease, polycythemia vera and living at altitude. It is important to advise to quit smoking if smoker and to lose weight if body mass index (BMI) is high, and to use continuous positive airway pressure if OSA. Long-acting intramuscular undecanoate shows the highest risk, while transdermal testosterone has the least risk of erythrocytosis. Tobacco use, high BMI, medical history and older age increase the risk. The dose of testosterone may be reduced, or the dosing interval may be increased, or switched to a transdermal formulation or considered for phlebotomy to maintain the hematocrit below 0.54 L/L.
D. **Estradiol:** Estradiol may be assessed during the initial 6 months of testosterone therapy or until menses have ceased for six consecutive months. Ideally, estradiol levels should fall within the physiological range for cisgender males (<50 ng/dL). However, no established guidelines currently exist for managing elevated estradiol levels in medically treated TGM.
E. **Lipid Profile:** Potential alterations in lipid metabolism may be caused by testosterone therapy.
F. **Liver Function:** Periodic liver function tests can help identify any hepatotoxicity, especially when oral estrogen formulations are used.

Recommendation 9: GAHT for TGM during the perioperative period

Hormonal therapy during the perioperative period requires a careful, balanced approach to ensure safety while maintaining the individual's comfort with regard to emotional and mental well-being. The primary concern related to surgical care in TGM on testosterone therapy is the potentially elevated risk of venous thromboembolism, which could lead to complications such as pulmonary embolism, myocardial infarction and stroke. While aromatization of testosterone to estradiol has the potential to increase the risk of thromboembolism, there is no clear evidence linking perioperative testosterone use to an increased risk of venous thromboembolism after surgery in TGM.[8]

1. Discontinuing testosterone therapy before surgery is generally not necessary.
2. High-risk patients (e.g. those with clotting disorders, obesity, liver dysfunction or polycythemia) may require dose adjustments or temporary discontinuation of testosterone therapy.
3. All TGM should receive counselling on fertility preservation options before surgical transition as this represents their final opportunity to preserve gametes. They may consider embryo cryopreservation, oocyte cryopreservation or ovarian tissue cryopreservation as potential options.[13]

Recommendation 10: Transitioning to hormonal therapy after gonadectomy or GAS in TGM

TGM requires lifelong testosterone replacement therapy, especially after gonadectomy. It is essential to counsel these individuals about the importance of consistent follow-up and the continuation of testosterone therapy. Discontinuing testosterone therapy can lead to negative physical and emotional effects, and testosterone therapy should be continued at the same doses used during the preoperative period. If adjustments to testosterone therapy (dose reduction or temporary discontinuation) are done before surgery, they should be resumed as soon as possible after surgery.[8]

Recommendation 11: Criteria for referring the patient for GAS in TGW and TGM

Criteria for GAS [Table 7] vary depending on the type of surgery. Below are the general criteria often referenced, mainly based on WPATH standards and the Endocrine Society clinical practice guidelines.[5,6]

Recommendation 12: Long-term care for TGW

Long-term care for TGW encompasses comprehensive medical support addressing the potential health risks of GAHT and promoting overall well-being. In most cases, GAHT is maintained throughout life. It is not known if doses of GAHT should be reduced in older people. TGW, at 45 years or above, are at higher risk of developing venous thromboembolism and should be switched to transdermal estrogen.[5]

A. **Breast Cancer Screening:** Once breast tissue develops due to estrogen therapy, routine breast cancer screening should follow the guidelines recommended by the National Comprehensive Cancer Network (NCCN) [Table 8]. For individuals aged 25–39 years, clinical breast examinations are advised. From age 40 onwards, mammography is recommended annually or every 2 years. High-risk individuals, such as those with a family history of breast cancer or known genetic mutations, should begin

screening earlier, with an individualized approach tailored to their risk profile.[14]

B. **Prostate Cancer Screening:** Despite reduced testosterone levels, transgender women retain prostate tissue and should undergo regular prostate cancer screenings as needed [Table 8].[15] Screening should adhere to the recommendations from the NCCN. The Urological Society of India (USI) Guidelines provide recommendations that are more appropriate for the Indian TGW population, considering genetic, environmental and healthcare access factors. These guidelines emphasize a personalized risk-based approach to early prostate cancer detection, advising prostate-specific antigen (PSA) testing along with DRE over 50 years. A PSA cut-off of 4 ng/mL is generally used for further evaluation, though no strict biopsy threshold is defined. The guidelines also recommend multi-parametric MRI for patients with elevated PSA and negative DRE to improve diagnostic accuracy. Given the diverse healthcare infrastructure and varied risk factors in India, these recommendations provide a practical and evidence-based framework for PSA-based prostate cancer screening in the Indian population.[16]

C. **Bone Health:** Maintaining bone health is essential for TGW, particularly due to the risk of bone density loss associated with reduced testosterone levels from GnRH agonists or gonadectomy, or when hormonal regimens are discontinued. Suppression of testosterone without adequate estrogen replacement can significantly impact bone health.[17]

A baseline BMD assessment using DXA is recommended for high-risk individuals including the members of the hijra community (where castration without estrogen replacement is a ritual of incorporation in the community, a significant though not universally followed practice), those with long-term testosterone suppression without sufficient estrogen replacement, a history of fractures, use of corticosteroids or a family history of osteoporosis. For these individuals, DXA scans should be repeated every 2–3 years. Routine DXA screening [Table 9] for all other low-risk individuals begins at age 50 and is repeated every 5 years.[7,18] A controversial area is whether or not to use assigned gender at birth when using traditional risk calculators like the Fracture Risk Assessment Tool (FRAX) score.

Preventive measures include ensuring adequate intake of calcium (1000–1200 mg daily) and vitamin D (600–800 IU daily) through diet or supplementation, engaging in resistance exercises to strengthen bones, quitting smoking and limiting alcohol consumption. Estrogen levels should also be maintained within the therapeutic range (typically 100–200 pg/mL) to support optimal bone health.

Table 7: Criteria for referring the patient for GAS

1. Age	At least 18 years old
2. Informed consent	A thorough understanding of the procedure, risks, benefits, and irreversible nature of surgery must be demonstrated by the patient.
3. Persistent gender dysphoria	A documented history of persistent, well-documented gender dysphoria as provided through assessments by mental health professionals.
4. Real-life experience (RLE)	For certain surgeries (e.g., genital reconstruction surgery), require individuals to live full-time in their affirmed gender for 12 continuous months.
5. Physical health	Patients should be in good overall health, with any medical conditions (e.g., diabetes, hypertension) managed before surgery.
6. Hormone therapy	Patients are required to have undergone hormone therapy (e.g., estrogen or testosterone) for at least 12 months, unless medically contraindicated for bottom surgery.
7. Chest surgery (top surgery)	Hormone therapy is strictly required for chest masculinization (removal of breast tissue for TGM). Though not a mandatory prerequisite, at least 12 months of feminizing hormone therapy is recommended before surgery to allow for maximum natural breast development in TGW.

Recommendation 13: Long-term care for TGM

Testosterone therapy is considered lifelong for maintaining masculinizing effects, bone health and psychological well-being. Therapy may be temporarily paused or stopped due to medical contraindications.

A. **Cancer Screening:** There is limited data on cancer risk in TGM. Due to the lack of large-scale studies, clear recommendations on the frequency and type of cancer screening protocols for TGM remain difficult to establish. Both over-screening and under-screening can have negative consequences. Additionally, some TGM may find it emotionally and physically challenging to undergo screenings for "female" cancers. In the absence of specific cancer screening protocols for TG individuals, recommendations from the NCCN should be followed (https://www.nccn.org) [Table 10].[8]

B. **Breast Cancer Screening:** The incidence of breast cancer in TGM remains very low. However, there have been reports of breast cancer even in postoperative residual mammary tissue after mastectomy in TGM undergoing long-term GAHT. Testosterone is partially aromatized into estradiol, and TGM on testosterone therapy may have clinically relevant levels of circulating estrogens affecting the residual mammary tissue. It is recommended that TGM between the ages of 25 and 39 undergo annual clinical breast examinations, including checks for residual sub- and periareolar tissue if mastectomy has been performed. From age 40 onwards, mammograms should be conducted annually or every 2 years.[8]

C. **Cervical Cancer Screening:** Cervical cancer screening is not necessary for TGM who have undergone a total hysterectomy with cervix removal. However, if cervical tissue remains, screening is recommended. Standard recommendations align with the NCCN (https://www.nccn.org) guidelines for cervical cancer screening. For individuals aged 21–29, a Pap smear is to be done every

Table 8: Cancer screening guidelines for TGW

Cancer type	Screening recommendations	Population	Notes
Breast cancer	Follow guidelines for cisgender women: Individuals aged 25–39 years: Clinical breast examinations. Individuals aged 40 years and above: Mammogram annually or every 2 years.	TGW on GAHT (on estrogen for ≥5 years).	Risk depends on duration of estrogen use; consider family history.
Prostate cancer	Follow guidelines for cisgender men: PSA screening based on individual risk at age 50 and above.	All TGW (even after orchiectomy).	Risk decreases with GAHT, but does not eliminate it.

Table 9: DXA screening guidelines for TGW

Category	Screening indications	DXA frequency
Before hormone therapy	Baseline DXA if high fracture risk (e.g., low BMI, smoking, prior fractures, prolonged corticosteroid use).	As needed based on risk factors.
On GAHT	No routine screening if adherent to estrogen therapy and no additional risk factors.	Not required unless risk factors arise.
Discontinuation of GAHT	DXA after 5 years of stopping estrogen.	Every 2–5 years depending on results.
Members of the hijra community with a prior history of castration (without GAHT)	DXA at 1–5 years after orchiectomy.	Every 2–5 years based on results.
Age 50+ (postmenopausal equivalent)	Routine DXA screening.	Every 1–2 years

3 years and human papillomavirus (HPV) testing is not required. For individuals aged 30–65, the preferred method is co-testing, which involves a Pap smear combined with an HPV test, due to the strong connection between HPV and cervical cancer. Co-testing should be done every 5 years. Beyond age 65, screening may be stopped if no abnormal Pap smears or HPV tests in the past 10 years. HPV testing should be conducted using the hybrid capture test, which is FDA-approved.[8]

D. **Endometrial Cancer Screening:** Since testosterone can be converted into estradiol in the body, which could potentially stimulate the endometrial tissue, endometrial cancer remains a risk in those who have not had a hysterectomy. In individuals presenting with vaginal bleeding, it is recommended to perform an ultrasonography and endometrial biopsy to screen for endometrial cancer. For TGM without abnormal uterine bleeding or symptoms, routine endometrial cancer screening is generally not necessary. In many cases, TGM undergoes both hysterectomy and oophorectomy, eliminating the need for endometrial cancer screening.[8]

E. **Ovarian Cancer Screening:** Ovarian cancer screening is not necessary for TGM who have undergone total hysterectomy with salpingo-oophorectomy. However, testosterone-treated TGM who have not undergone surgery to remove their ovaries may still face a risk of ovarian cancer. As there is no reliable screening test for ovarian cancer that has demonstrated a reduction in mortality, routine screening (transvaginal ultrasound and serum cancer antigen 125, (CA 125) is not recommended by the NCCN guidelines. Symptomatic individuals (e.g. unexplained pelvic pain, bloating or changes in bowel habits) should undergo further evaluation.[8]

F. **Bone Health:** GAHT does not negatively impact BMD in TGM. Gonadectomy does not pose an additional risk to BMD if GAHT is administered appropriately. Regular long-term monitoring of BMD via DXA scans [Table 11] should be conducted every 2–3 years for high-risk individuals, such as those who had oophorectomy without GAHT or stopped testosterone therapy, those using corticosteroids or those with a family history of osteoporosis. Long-term routine BMD monitoring is also recommended for individuals above 50 years. Adequate intake of calcium (1000–1200 mg daily) and vitamin D (600–800 IU daily), either through diet or supplements, along with resistance exercises, should be promoted to strengthen bones and prevent osteoporosis.[19]

Recommendation 14: Cardiovascular health in TG

Although long-term data (beyond 10 years) is lacking, the ENIGI study has confirmed the overall safety of GAHT in the short to mid-term. The cardiovascular implications of long-term estrogen therapy in TGW remain uncertain. While estrogen has minimal effects on blood pressure, it can significantly influence cardiovascular health. Despite favourable changes in lipid profiles, estrogen use in TGW is associated with pro-coagulant changes and increased risk of myocardial infarction and ischemic stroke, particularly with higher doses or inappropriate use. Despite higher hematocrit, increased BP and unfavourable changes in lipid profiles with testosterone therapy in TGM, there is no consistent or convincing evidence of increased CVD risk.[20] The ENIGI study further confirmed the overall safety of GAHT in the short to mid-term for TGM.[21]

Available literature reported no increased risk for type 2 diabetes in TG cohorts, but feminizing GAHT is associated with higher fat mass and insulin resistance, while masculinizing GAHT increases lean body mass. Prospective screening for CVD risk is advised during GAHT [Table 12].

Biological age, family history of CVD, pre-existing CVD, autism, age at initiation of GAHT and assigned sex at birth may influence individual CVD risk profiling.[21] Modifiable risk factors include lifestyle, weight, diet, physical activity, sleep, smoking, stress and socioeconomic status (education, employment, relationships).[22] Consider primary prevention if age >45 years, assigned male at birth, family history of CVD, current smoking, obesity, autism, hypertension, dyslipidemia or type 2 diabetes.[22] A comprehensive approach to cardiovascular health in TGM includes addressing individual risk factors and implementing preventive strategies. Optimal use of CVD risk markers needs to be established in TG cohorts to ensure optimal cardiovascular health. CVD screening is essential for TG individuals, especially those on GAHT.[22]

Optimizing hormone regimens for CVD safety and promoting lifestyle modifications, such as regular physical activity, a heart-healthy diet, smoking cessation, weight management and close surveillance leading to optimized preventive medication (e.g. statins) are vital components of long-term care. GAHT should consider CVD risk factors and TG patient's wishes and tailor them individually.[22]

In TGW, assigned male sex at birth, higher age at initiation of GAHT and use of cyproterone acetate are separate risk factors for adverse CVD markers. GAHT should be individualized according to individual risk factors (i.e. drug, dose and form of administration), improving metabolic and CVD outcomes. Ethinyl estradiol and conjugated estrogens should not be used as GAHT due to higher CVD risks, especially thromboembolism, and similar cases may be made for routine progesterone use.

Table 10: Cancer screening guidelines for TGM

Cancer type	Screening recommendations	Population	Notes
Breast cancer	Follow guidelines for cisgender women: Individuals aged 25–39 years: Clinical breast examinations. Individuals aged 40 years and above: Mammogram annually or every 2 years.	TGM who have not had top surgery or have residual breast tissue.	Consider earlier screening if high risk (e.g., BRCA mutation).
Cervical cancer	Pap tests every 3 years (and HPV test every every 5 years) for ages 21–65 if the cervix is present.	TGM with intact cervix.	Discomfort may require patient-centered approaches.
Endometrial cancer	Evaluate abnormal vaginal bleeding, especially if on testosterone.	TGM with intact uterus.	Testosterone can cause endometrial atrophy, but unopposed estrogen may increase the risk.
Ovarian cancer	No routine screening unless high risk (e.g., BRCA mutation).	TGM with intact ovaries.	Consider removal of ovaries if at high risk.

Table 11: DXA screening guidelines for TGM

Category	Screening indications	DXA frequency
Before hormone therapy	Baseline DXA if high fracture risk (e.g., low BMI, smoking, prior fractures, prolonged corticosteroid use).	Every 2–3 years for high-risk individuals.
On GAHT	No routine screening if adherent to testosterone therapy and no additional risk factors.	Not required unless risk factors arise.
Discontinuation of GAHT	DXA after 5 years of stopping testosterone.	Every 2–3 years depending on results.
Oophorectomy (without GAHT)	DXA at 1–5 years after oophorectomy.	Every 2–3 years based on results.
Age 50+ (postmenopausal equivalent)	Routine DXA screening.	Every 1–2 years.

Table 12: Cardiovascular screening guidelines for TG people

Screening parameter	TGW	TGM	Notes
Blood pressure (BP)	Every clinic visit	Every clinic visit	Hypertension risk may increase with GAHT.
Lipid profile (cholesterol, LDL, HDL, triglycerides)	Check baseline before GAHT, then monitor annually	Check baseline before GAHT, then monitor annually	Estrogen may increase triglycerides; testosterone may lower HDL.
Blood glucose/HbA1c	Screen annually	Screen annually	Testosterone may increase insulin resistance.
Risk assessment atherosclerotic cardiovascular disease score (ASCVD), Framingham risk score (FRS), or QRisk score (QRisk3)	Consider if age is >40 or has high-risk factors	Consider if age is >40 or has high-risk factors	QRisk is the best for TG individuals because it considers a wider range of risk factors.
Electrocardiogram (ECG)	If symptomatic or annually	If symptomatic or annually	For chest pain, palpitations, or other concerns.
Echocardiogram	Suspected heart disease	Suspected heart disease	Estrogen may increase the risk of blood clots and heart disease.
Carotid intima-media thickness (CIMT)/coronary artery calcium score	Considered in high-risk individuals	Considered in high-risk individuals	Screening frequency is based on provider discretion.

Table 13: GAHT and ART drug interaction

Art class	Examples	Interaction	Clinical concern	Management recommendation
Protease Inhibitors (PIs) + Cobicistat.	Darunavir/COBI, Atazanavir/COBI	↑ Estrogen levels (CYP3A4 inhibition)	Increased risk of thromboembolism, breast tenderness, nausea	Prefer transdermal estrogen over oral; Monitor estradiol levels.
		↑ Testosterone levels (CYP3A4 inhibition)	Acne, mood swings, polycythemia	Monitor testosterone levels; Reduce dose if needed.
		↑ Risk of hyperkalemia	Use with spironolactone	Monitor potassium levels regularly.
NNRTIs	Efavirenz, Nevirapine	↓ Estrogen levels (CYP3A4 induction)	Reduced feminization, hot flashes	Monitor estradiol levels; Dose may be increased.
		↓ Testosterone levels (CYP3A4 induction)	Reduced masculinization, fatigue	Monitor testosterone levels; Dose may be increased.
		No significant effect on potassium	No concern with spironolactone	No adjustment needed with spironolactone.
Integrase Inhibitors (INSTIs)	Dolutegravir, Raltegravir, Bictegravir	No significant effect on estrogen or testosterone	No concern	Preferred ART option for patients on GAHT.
NRTIs	Tenofovir, Emtricitabine, Lamivudine	No significant effect on estrogen or testosterone	No concern	No adjustment needed.

Oral estradiol valerate or 17-beta estradiol is recommended. In high CVD risk and above 45 years, transdermal estrogen or injectable should be used.

In TGM, avoiding supraphysiologic dosing and using of lowest effective dose of testosterone for achieving desired masculinizing effects, and maintaining hematocrit below 0.55 L/L to reduce erythrocytosis risk is essential for minimizing cardiovascular risks. Available evidence does not indicate superior cardiovascular safety or metabolic benefits of one testosterone formulation over another.[6] In individuals <40 years of age, lifestyle modifications (e.g. healthy diet, regular physical activity, smoking cessation) and periodic monitoring of risk factors are sufficient. However, as age advances and the duration of testosterone therapy increases, active screening for subclinical atherosclerosis and CVD should be performed more frequently.

Recommendation 15: HIV and other STIs

TG persons are more vulnerable to HIV and other STIs due to high-risk sexual behaviour, in turn, HIV transmission, due to discrimination, stigma and economic marginalization. Comprehensive sexual history and regular clinical risk assessments for HIV and STI screening are necessary. All TG individuals below 65 years should be screened for HIV at least once in their lifetime, regardless of their level of exposure risk. TG at increased risk should be screened for HIV, at least annually, with more frequent testing in high-risk individuals.[23]

There is a potential for drug–drug interactions in TG individuals with HIV and antiretroviral therapy (ART), who are undergoing feminizing or masculinizing GAHT [Table 13]. Certain protease inhibitors (PIs), non-nucleoside reverse transcriptase inhibitors (NNRTIs) and the pharmacokinetic booster (cobicistat) can alter the metabolism of estradiol and testosterone. While some NNRTIs and PIs may increase hormone metabolism, leading to lower plasma levels of estradiol or testosterone and potentially requiring higher GAHT doses, cobicistat and certain PIs may inhibit metabolism, resulting in elevated hormone levels, which could necessitate dose reduction to avoid adverse effects. Careful monitoring of hormone levels and clinical response is essential for optimizing therapy.[24]

HIV pre-exposure prophylaxis (PrEP) should be considered for TG at risk of HIV acquisition. Current evidence does not suggest that PrEP reduces the effectiveness of GAHT. However, further research is needed to evaluate the efficacy of PrEP in preventing HIV, specifically in transgender populations and to assess its impact on individuals living with HIV. Additionally, further investigation is required to understand how PrEP use may influence progression through the stages of the HIV care continuum in transgender individuals.[23]

Recommendation 16: Vaccine recommendations

TG individuals should follow the same immunization guidelines as the general population, with additional considerations based on individual risk factors and behaviours. While there are no vaccine recommendations exclusively for transgender individuals, certain vaccines are particularly important due to the higher prevalence of specific health risks within this community.[25]

1. HPV vaccine: recommended for all TG individuals up to age 45 to reduce the risk of cervical, anal and oropharyngeal cancers. HPV can affect anal and throat regions in TGW and the HPV vaccine helps prevent cervical cancer in TGM if the cervix is still present.
2. Hepatitis A and B vaccines: essential for individuals at higher risk of exposure (e.g. sex workers, those with multiple partners or injectable drug users).
3. Meningococcal vaccine: considered for individuals on PrEP (for HIV).
4. Pneumococcal vaccine: considered for individuals

with chronic conditions (e.g. HIV, smoking or immunocompromised states).

Conclusion

The endocrine management of TG individuals in India remains a critical yet underdeveloped aspect of healthcare. This clinical practice guideline by the ESI provides a comprehensive framework for the management of TG individuals. Healthcare providers may adjust them in collaboration with the patients. Modifications to the clinical practice guideline may arise due to unique anatomical, social or psychological circumstances; a provider's evolving approach to common issues; participation in research protocols; resource limitations in certain regions or the implementation of specific harm-reduction strategies. To ensure equitable access to high-quality TG healthcare, it is imperative to enhance medical education on transgender health for healthcare professionals, combat transphobia within the medical system through sensitization programs and encourage research specific to TG healthcare needs in India. By adopting these evidence-based, standardized yet adaptable clinical protocols, India can move towards a more inclusive healthcare system that recognizes and respects the medical needs of TG individuals, ensuring dignified, affirming and scientifically sound endocrine care.

Disclaimer

These clinical practice guidelines are meant to provide guidance, but they are not to be considered prescriptive for any individual patient and cannot replace the judgment of a clinician.

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Author contributions

The manuscript has been read and approved by all the authors, the requirements for authorship as per the journal is met, and each author believes that the manuscript represents honest work.

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Conflict of interest

The authors of these guidelines declare no conflicts of interest related to the development, content, or recommendations provided in this document.

Use of artificial intelligence

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Annexures

Annexure 1: Diagnostic criteria for gender incongruent adults based on the Diagnostic and Statistical Manual of Mental Disorders-5

Criteria	Description
A	A marked incongruence between one's experienced/expressed gender and assigned gender, of at least 6 months duration, as manifested by at least two of the following: 1. A marked incongruence between one's experienced/expressed gender and primary and/or secondary sex characteristics. 2. A strong desire to be rid of one's primary and/or secondary sex characteristics because of a marked incongruence with one's experienced/expressed gender. 3. A strong desire for the primary and/or secondary sex characteristics of the other gender. 4. A strong desire to be of the other gender (or some alternative gender different from one's assigned gender). 5. A strong desire to be treated as the other gender (or some alternative gender different from one's assigned gender). 6. A strong conviction that one has the typical feelings and reactions of the other gender (or some alternative gender different from one's assigned gender)
B	The condition must also be associated with clinically significant distress or impairment in social, occupational, or other important areas of functioning.
Other considerations	1. Specify if the condition is associated with a disorder of sex development (such as congenital adrenal hyperplasia or partial androgen insensitivity syndrome) 2. Specify if the condition is post transition: The individual has transitioned to full time living in the desired gender (with or without legalization of gender change) and has undergone (or is preparing to have) at least one cross sex medical procedure or treatment regimen including regular cross sex hormone treatment or gender reassignment surgery confirming the desired gender (e.g., penectomy, vaginoplasty in a natal male; mastectomy or phalloplasty in a natal female)

Annexure 2: Certificate of mental health clearance for gender-affirming hormone therapy (TGM)

TO WHOM IT MAY CONCERN

This is to certify that..... (Name), born on..... (Date), by birth female resides at

…… (Address) with identification ID …… (VOTER ID CARD NO/PASSPORT NO/AADHAR NO/PAN NO) identifies himself/herself as female-to-male transgender person. (Name)'s preferred pronoun is he…… (Name) has been examined by me today. (Date). (Name) meet the DSM5 criteria for Gender Dysphoria/Gender Incongruence. A thorough history of his development of Gender Dysphoria/Gender Incongruence has been obtained. (Name) has been living as Female-to-Male trans-person since the last.(Years). He has adequate understanding about the mental health and challenges consequent to the nonconfirming gender identity and also has a good/little social support.

There is no evidence of any major psychiatric disorder at present.

..... (Name) appears well adjusted to his preferred gender (male) and is presently psychologically fit to give consent and start gender affirmation treatment. I would be available for further coordination of care with regard to the treatment and follow-up.

His signature is attached herewith.

Signature of the subject — Signature of psychiatrist

Date: — Date:

Registration No:

Annexure 3: Certificate of mental health clearance for gender-affirming hormone therapy (TGW)

TO WHOM IT MAY CONCERN

This is to certify that..... (Name), born on..... (Date), by birth male resides at..…… …… (Address) with identification ID …….. (VOTER ID CARD NO/PASSPORT NO/AADHAR NO/PAN NO) identifies himself/herself as male-to-female transgender person. (Name)'s preferred pronoun is she……. (Name) has been examined by me today..... (Date)..... (Name) meet the DSM5 criteria for Gender Dysphoria/Gender Incongruence. A thorough history of her development of Gender Dysphoria/Gender Incongruence has been obtained..... (Name) has been living as male-to-female trans-person since the last..... (Years).

She has adequate understanding about the mental health and challenges consequent to the nonconfirming gender identity and also has a good/little social support. There is no evidence of any major psychiatric disorder at present..... (Name) appears well adjusted to her preferred gender (female) and is presently psychologically fit to give consent and start gender affirmation treatment. I would be available for further coordination of care with regard to the treatment and follow-up. Her signature is attached herewith.

Signature of the subject — Signature of psychiatrist

Date: — Date:

Registration No:

Annexure 4: Affidavit for name and gender change

(For Transgender Individuals as per the prescribed legal format in India)

SELF-DECLARATION IN THE FORM OF AFFIDAVIT

I, [Current Name], S/o/D/o [Parent's Name], aged [Age] years, presently residing at [Full Address], do hereby solemnly affirm and declare as follows:

1. That I am a citizen of India, born on [Date of Birth], and my birth was registered under the name [Current Name].
2. That I identify as a [Preferred Gender – Transgender/Male/Female], and I have been living in alignment with this identity.
3. That I wish to change my name from [Current Name] to [New Name] and be recognized by my preferred gender in all official records and documents.
4. That this change of name and gender is made of my own free will, without any coercion, and I affirm my gender identity as [Preferred Gender].
5. That I request all authorities concerned to update my records to reflect my new name [New Name] and gender as [Preferred Gender] in all legal and official documents.
6. That I understand the legal consequences of this affirmation and declare that the information provided in this affidavit is true and correct to the best of my knowledge and belief.

DEPONENT

(Signature)

[New Name]

Date: [Date]

Place: [City]

Verification

I, [New Name], do hereby verify that the contents of this affidavit are true and correct to the best of my knowledge and belief, and nothing has been concealed therein.

DEPONENT

(Signature)